OPHTHALMOLOGY.

UNDER THE CHARGE OF
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Corneal Ulceration Treated by Exclusion of Actinic Light.—W. Lowe (*Intercolonial Medical Journal of Australasia,* March 20, 1903) reports a case of ulceration of the cornea of two years' duration treated by exclusion of actinic light. The patient had intense intolerance of light, and was confined to a darkened room. Every form of treatment was tried without avail, until, acting on the theory that the actinic rays were keeping up the trouble, the patient was placed in a room the windows of which were covered with red photographic tissue paper. The effect was most remarkable. The intolerance to light and pain disappeared, while the injected cornea blanched as if adrenalin had been applied. The next morning lacrymation and discharge ceased, and on the third day the patient could read and sew. No sign of ulceration could be seen. The next day she went out of doors protected with ruby glass goggles.

The writer thinks that the red rays may have some germicidal action, or they may act by allaying inflammation.

Glaucoma.—Wahlsfors (*Arch. of Oph.,* November, 1903) insists that the conception of glaucoma, which goes back to von Graefe as being one with increased tension, is false. The attempt to differentiate certain cases of so-called simple glaucoma without increased tension from true glaucoma is a mistake. They are both essentially the same disease. We see simple glaucoma pass into inflammatory, and *vice versa.* He argues that the increase in tension is something accidental, and not even essential to glaucoma.

As regards the opinion now largely prevalent, that the cause of glaucoma lies in closure of the channels of exit, the writer asserts that while this may play an important role in inflammatory glaucoma, it is not applicable in simple glaucoma, where the increase in tension is quite subordinate and sometimes even absent. The latter class is very important in the explanation of glaucoma, as showing that this disease may exist without tension and without retention, thus proving that retention is not the cause of glaucoma. The writer calls attention to the variations in the fields. The defect may be central, peripheral, or irregular, or sector-like. There is no typical glaucomatous field. Excavation appears as a rule as a late sign. He insists upon the importance of one symptom as a true indication of the nature of the fundamental cause. This is reduction of the light-sense first, noticed by Forster, and emphasized by Mauthner. Hemeralopia may be the first and only symptom present for a long time, perhaps even overlooked by the patient, if confined to the periphery. The cause of hemeralopia is functional disturbance of the rods and cones in consequence of imperfect nutrition, the cause of which must lie in the inner layers of the choroid, whose vessels supply the outer layers of the retina. In the choroid, then, we must seek the cause of simple glaucoma. The choroidal lesion is an atrophy. The functional disturbances in simple glaucoma—diminution of the light-sense, narrowing of the field of vision, and diminution of central vision—may readily result from the atrophic process, which does not at once extend over the entire choroid, but begins usually in the periphery and gradually extends toward the centre, although the reverse is sometimes observed. The sector-like defects of the field depend upon limited layers of atrophy. The excavation of the nerve head is also best explained when the resistance is diminished by preceding inflammatory process, such as sclerochoroiditis. A normal disk possesses sufficient resisting power to withstand not only the normal tension, but considerable increase, as may often be observed in adherent leukoma, where we find a normal disk, with considerable increase in tension for years. Where the tissues of the disk (lamina cribrosa, in the formation of which the choroid takes some part) have lost their resistance, excavation may come on independent of increased tension, which should, therefore, not be designated pressure excavation.

The increased tension may also be explained as the result of the choroidal atrophy. Normally the choroid exerts pressure upon the liquid contents of the eyeball, as is shown by Donders' observation, that when all the coats of the eye are divided together the choroid retracts from the margin of the wound and leaves the sclera exposed. This contractility is doubtless due to the numerous muscular fibres which accompany the larger vessels and to Bruecke's muscle, which acts as a tensor. Such a muscular network acts as a restrainer of tension, not only by its direct resistance to the pressure of the contents, but also increases the lymph circulation (the currents of liquids) through the pressure it exercises. In glaucomatous increase of tension three factors are at work—paralysis of the muscular network of the choroid, causing a slowing of the currents of liquid; the channels of exit in consequence of the retarded flow become blocked and cause a retention of the ocular liquids, and finally, the venæ vorticosæ, which are compressed by the increased tension, lead to a venous stasis with all its results. As the disease process is due to choroidal atrophy, the prognosis of glaucoma in general must be considered bad, as we have no remedies to act on this process. The writer thinks that repeated injections of strychnine prevent the spread of the atrophy. He believes that an injection per day for ten or twenty days, repeated three or four times a year, has enabled him to preserve the vision for many years in simple glaucoma, with little or no increase in tension.

In simple glaucoma iridectomy is useless as a curative, but valuable as a prophylactic measure against acute attacks. Where the tension is increased iridectomy remains the sovereign means of reducing it, but its action is not understood; Exner's explanation that the short arterial twigs proceeding from the major arterial circle of the iris form direct anastomoses with the corresponding venous twigs, without having to pass through the capillary network, is probably the best. Iridectomy thus works, as Knapp expresses it, as a safety-valve. As, however, the atrophic process continues, central vision becomes poorer, the field contracts, and the disk becomes excavated.

Sclerotomy, both anterior and posterior, as long as the wound is not thoroughly healed, is useful in giving time for the circulatory disturbance to pass off. Eserine reduces tension in fresh cases of acute congestive glaucoma, through causing contraction of the tensor of the choroid and probably of its muscular network. In simple glaucoma eserine is only valuable so long as the atrophic process has not entirely paralyzed the muscular network and the tensor.

Some Modern Views on Primary Glaucoma.—ELLIOT, I. M. S. (*Ind. Med. Gaz.*, July, 1903), gives a résumé of the above subject, based on a review of the opinions of leading authorities as found in the literature of the subject, as well as from personal interviews. He sums up that under the term simple glaucoma have been in the past included: (1) cases in which the prime factor was disease of the optic nerve; (2) cases in which the triad of symptoms alone occur—*i. e.*, cupped disk, retracted field, and diminution of visual acuity, and (3) a long series of cases passing insensibly from the last class and merging at the opposite end of the scale into well-marked congestive glaucoma. Atrophic cases should be carefully distinguished and placed apart. Classes 2 and 3 may be separated from each other by advancing knowledge, which may lead to a better comprehension of their pathology, a result greatly to be desired, establishing more exact indications for operation. As respects treatment of glaucoma, there is no divergence as to the rational and medical measures—myotics and general hygiene.

Of surgical operations, sclerotomy and iridectomy, the writer concludes that the modern ophthalmologist undertakes iridectomy with a much more expectant heart than that with which he performs sclerotomy. Many operators prefer sclerotomy (1) in early cases where there is considerable doubt, (2) in late cases where it is employed as a *dernier ressort,* (3) in desperate cases where iridectomy has failed, and (4) in simple glaucoma where any operation is doubtful, and, therefore, the procedure of least magnitude is chosen, although the balance of safety does not lie wholly with the latter operation. Sympathectomy finds its rôle according to Abadie, in those cases in which the triad alone is present, which do not yield to medicinal and rational treatment.

The Wearing of Artificial Eyes over an Eyeball in Situ and after Abscission of Staphyloma.—F. A. Müller's Sons (*Klin. Mon. f. Augenheilk.*, October, 1903) call attention to the impracticability of fitting the ordinary shell, which answers well enough in cases like phthisis bulbi, to the full eyeball, or such as are but slightly shrunken, the thickened spot convex posteriorly in the region of the iris of the shell, exerting undue pressure if applied to a full globe and preventing perfect apposition. The perfectly flat shells still found in the shops are entirely worthless. They propose to meet the cases in question by giving the prosthesis a smooth concavo-convex form to permit perfect apposition.

The writers also criticise the horizontal cicatrix with its angular edges, which results from the usual mode of abscising staphylomata (a horizontal elliptical section with vertical sutures). These edges enormously increase the difficulty of prosthesis and quite destroy the cosmetic effect,